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ABSTRACT

This presentation describes SuperPILOT, an extended version of Apple PILOT, a programming language for developing computer-assisted instruction (CAI) with the Apple II computer that includes the features of its early PILOT (Programmed Inquiry, Learning or Teaching) ancestors together with new features that make use of the Apple computer's advanced graphics and sound capabilities. Advantages and disadvantages of CAI are noted, including the positive aspects of individualization of instruction, freeing of teachers from repetitive tasks, and incorporation of alternative media, and such negative aspects as the lack of an "ideal" authoring language, difficulties of producing high quality software, and the high cost of hardware, software, and course development. Also included are: (1) definition and construction of SuperPILOT; (2) 7 new features of SuperPILOT, including the "V" instruction, which allows the computer to operate a videotape or disc player and incorporate video images with the CAI lesson, high resolution text and graphics with 27 foreground and background colors, animation of character sets, text editor display of upper and lower case characters with "wrap-around" text entry, utility programs for initializing diskettes and copying program selectively, student record keeping file, and faster retrieval and production of graphics, file handling and loading; (3) hardware and software requirements for using SuperPILOT; (4) SuperPILOT instructions; (5) a table describing the new features; and (6) a 5-item reference list. (JB)

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SuperPILOT: A Comprehensive Computer-Assisted Instruction Programming Language for the Apple II Computer

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This presentation describes superPILOT, an extended version of Apple PILOT, a programming language for developing computer-assisted instruction with the Apple II computer. SuperPILOT includes the features of its early PILOT ancestors with additional improvements that can make use of the Apple computer's advanced graphics and sound capabilities.

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A Paper Presented at the Annual Meeting of

the American Society for Medical Technology and American Medical Technologists

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SUPERPILOT: A COMPREHENSIVE COMPUTER-ASSISTED INSTRUCTION PROGRAMMING LANGUAGE FOR THE APPLE II COMPUTER

Every educator has wished for the ability to provide unlimited personal attention to each of his students in a one-to-one interaction tailored specifically to that student's abilities and needs. Computer-Assisted Instruction (CAI) is one attempt to help grant that wish. CAI is a teaching process directly involving the computer in the presentation of instructional materials in an interactive mode to provide and control the individualized learning environment for each student. Using a program written by the instructor, a student may receive individualized tutoring, practice, and testing with frequent interaction between the student and the program.

ADVANTAGES OF CAI

There are a number of well-recognized advantages to CAI. The most important are (1) individualizing instruction to allow students to learn at their own pace, (2) improving teaching by freeing teachers from repetitive concept teaching, and (3) incorporating a number of alternative media into instructional lessons.

DISADVANTAGES OF CAI

The most frequently cited disadvantages of CAI are: (1) the lack of an "ideal" authoring language, (2) the difficulty of producing high-quality software, and (3) the high cost of hardware, software, and course development.

WHAT IS SUPERPILOT?

SuperPILOT, an extended version of Apple PILOT, was released in 1982. The original PILOT (Programmed Inquiry, Learning, or Teaching) authoring language was developed in 1969 by Dr. John A. Starkweather and associates at the University of California, San Francisco. Apple PILOT was based on COMMON PILOT, developed by George Gerhold and Larry Kheriaty at Western Washington University. SuperPILOT has all of the desirable features of Apple PILOT with some major improvements that facilitate editing and file handling.

SuperPILOT uses four editors to create CAI lessons. The lesson text editor is used to create text, ask questions, process answers, store data, and control output devices. The graphics editor is used to create pictures, diagrams, etc. that can be used when the lesson is run. The sound effects editor allows the author to create music and special sound effects that can be insterted into the lesson. The character set editor is used to create and store characters designed by the author (ie. algebraic characters, figures, shapes, etc.) which can be included in the lesson text.

Within the four editors SuperPILOT uses 26 instructions to create CAI lessons. It uses a subset of the UCSD Pascal Editor to create text material, graphics, sound effects, character sets, and control external devices such as videotape recorders and videodisc players. These intructions are shown in Table 1. The instructions are one or two letters in length and are readily identifiable and easily learned.

NEW FEATURES OF SUPERPILOT

The most useful new features of SuperPILOT include: (1) the V instruction, which allows the computer to operate a videotape or videodisc player and incorporate video images with the CAI lesson, (2) high resolution text and graphics with 27 foreground and 27 background colors, in single or

double-size fonts, (3) animation of character sets, (4) Text editor display of upper and lowercase characters with "wrap-around" text entry, (5) utility programs for initializing diskettes and copying programs selectively, (6) a special student record keeping file, SYSTEM.LOG, for storing student names, scores, etc., (7) faster retrieval and production of graphics, file handling and loading. A complete list of these new features is shown in Table 2.

HARDWARE AND SOFTWARE REQUIREMENTS

SuperPILOT authors must purchase the SuperPILOT software package which includes an Author diskette, a backup Author diskette, a sample program diskette named LESSON, and a CAI tutorial about SuperPILOT which is named COPILOT. In addition to the 5 diskettes, the documentation for SuperPILOT includes an Editors Manual and a Language Reference Manual.

The SuperPILOT software package sells in most computer retail stores for approximately $200. In addition to the SuperPILOT software, authors should consider the following hardware:

(1) Apple II, II-Plus, II-E, or II-C with a minimum of 48K RAM memory and 16K language card (required)
(2) Color monitor (SuperPILOT will run on a monochrome monitor but you cannot take advantage of the high resolution colored graphics and text)
(3) Dual disk drives (only required for authoring a lesson, students can take a lesson with a single drive system)
(4) Printer (optional but very helpful when editing your program)
(5) Trakball (optional but very useful in creating complex graphics.

Creating good CAI material that meets your students' needs is a difficult and laborious task. SuperPILOT provides you with some excellent tools to accomplish the task, the only limitation is your imagination.

TABLE 1

SuperPILOT Instructions

R	remark	G	graphics
T	type	S	sound
A	accept	GX	graphics execute
M	match	SX	execute sound
J	jump	TX	character set execute
U	use	TS	type specify
E	end	PR	problem
L	link	AP	accept point
D	dimension	FOX	open new file
C	compute	FIX	open old file
W	wait	FO	file output
K	keep	FI	file input
V	external device	XI	execute indirect

TABLE 2

NEW FEATURES IN SUPERPILOT

LANGUAGE EXTENSIONS

Type Specify (TS) Instruction	provides greater variety in the presentation of text material; setting foreground and background color, animation, changing character size and style, sending text to a printer
Recordkeeping	records of student performance may be kept in a special file named system.log by using the KEEP (K) instruction; this file can be statistically analyzed and summarized by Apple SuperPILOT LOG, an optional statistical package available from Apple
External Device Control	communication between a SuperPILOT lesson and a videodisc or videocassette player is possible with the V instruction
Immediate Execution Mode	experiments with SuperPILOT instructions and temporary patches in lessons that are being tested can be accomplished by pressing control I during the running of a lesson in Author mode
Relative Graphics	two new commands have been added to allow turtlegraphics movement; one sets an absolute angle that is used as the direction of graphics movement; the other sets a relative angle or spin to change that direction in incremental steps.

OPERATING SYSTEM EXTENSIONS

High-Resolution Screen Driver	increases graphics capabilities
Operating System Expansion	expansion of the operating system to 64 kilobytes to take advantage of the increased capacity of the 16K language card

REFERENCES

1. Apple Computer, Inc: Apple SuperPILOT Editors Manual. Apple Computer, Cupertino, CA.

2. Apple Computer, Inc: Apple SuperPILOT Language Reference Manual. Apple Computer, Cupertino, CA.

3. Hazen, M: Computer-Assisted Instruction with PILOT on the Apple Computer. Educational Technology, 22:20-22, 1982.

4. Kellner, C: V is for Videodisc. Creative Computing, 8:104-105, 1982.

5. Peterson, M: SuperPILOT Creates Computer-Aided Instruction. Infoworld, 4:45-46, 1982.